

The opinion in support of the decision being entered today is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MARKUS OBERTHUR

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Appeal 2007-1521  
Application 10/694,584<sup>1</sup>  
Technology Center 1700

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Decided: 31 May 2007

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Before RICHARD E. SCHAFER, ROMULO H. DELMENDO, and MARK NAGUMO, *Administrative Patent Judges*.

NAGUMO, *Administrative Patent Judge*.

DECISION ON APPEAL

**A. Introduction**

Applicant ("Oberthur") appeals under 35 U.S.C. § 134(a) from the final rejection of claims 1, 2, 4, 5, and 6, which are all the claims remaining

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<sup>1</sup> Application (original) filed 27 October 2003. The real party in interest is identified as Lanxess Deutschland GmbH. (Br. at 3.)

in his application. We have jurisdiction under 35 U.S.C. § 6(b). We  
AFFIRM.

The Examiner relies on the following prior art:

Becke                      U.S. Patent 5,965,678      12 October 1999.

Becke is prior art under 35 U.S.C. § 102(b) against Oberthur's  
application.

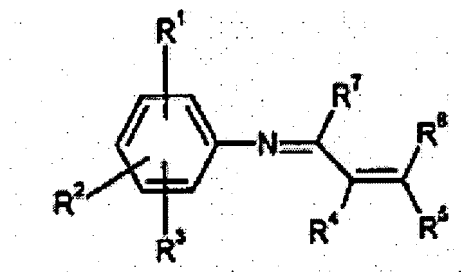
The Examiner has rejected claims 1, 2, 4, 5, and 6 as being anticipated  
under 35 U.S.C. § 102(b) by Becke.

**B. Findings of Fact**

The following findings of fact and any set out in the Discussion are  
supported by a preponderance of the evidence of record. Any conclusions of  
law should be so treated.

1. The claimed subject matter relates to a process of reducing the aging characteristics of vulcanized rubber compositions and to the compositions.
2. According to the specification, it is known to add anti-aging agents to rubber vulcanizates to improve their heat resistance and storage stability. (Specification at 1.)
3. Among the advantages of the present invention are said to be a simple, single stage synthesis, and relatively low volatility and extractability compared to known anti-aging agents. (Specification at 2.)
4. In the words of the specification, "[t]he present invention provides anti-aging agents for rubber vulcanizates, based on organic compounds containing conjugated azadiene groups of the general formula (I) . . . " (Specification at 2).

5. General formula (I) is:



6. Groups R<sup>1</sup> through R<sup>7</sup> are defined in relevant part<sup>2</sup> as:

R<sup>1</sup> represents hydrogen, straight-chain or branched C<sub>1</sub>-C<sub>12</sub>-alkyl, \* \* \*

R<sup>2</sup> and R<sup>3</sup> are the same or different and represent straight-chain or branched C<sub>1</sub>-C<sub>12</sub>-alkyl, \* \* \*

R<sup>4</sup> to R<sup>7</sup> are the same or different and represent hydrogen, straight-chain or branched C<sub>1</sub>-C<sub>12</sub>-alkyl \* \* \*.

7. The specification does not contain an express definition of the term "based on."

8. Seven examples of preferred compounds of the invention are shown and named at page 7 of the specification.

9. None of the preferred compounds contains a metal atom.

10. According to the specification, the anti-aging agents of the invention are "normally used in quantities of 0.5 wt.% to 10 wt.%, preferably 1 wt.% to 5 wt.% in relation to 100 parts of the rubber used." (Specification at 13.)

11. The specification does not further describe the physical or chemical properties or effects of anti-aging agents.

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<sup>2</sup> The complete definition is reproduced in Appendix I as part of claim 1.

12. Claim 1 reads in most relevant part<sup>3</sup>:

A method for reducing the aging characteristics of a rubber vulcanizate comprising admixing

[a] an anti-aging agent, based on organic compounds comprising azadiene groups of the general formula (I)

with

[b] at least one rubber monomer and

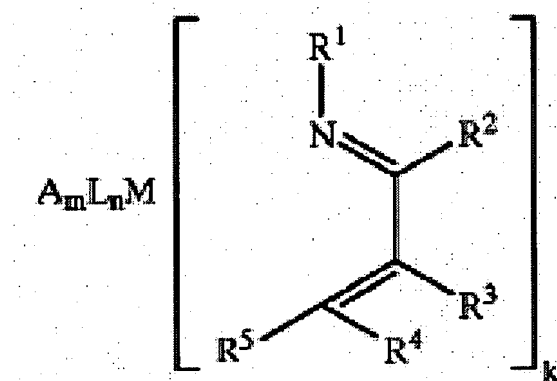
[c] a vulcanizing agent.

(Answer at 14–15 (Claims Appendix); indentation, emphasis, and bracketed labels added.)

Becke

13. Becke states that "[t]he present invention relates to a catalyst system based on monoazadiene metal complexes and their use for the polymerization of unsaturated compounds." (Becke at 1:3–6.)

14. Becke describes catalyst systems based on monoazadiene complexes of the formula:



<sup>3</sup> A complete copy of claim 1 is reproduced in Appendix I.

15. Groups R<sup>1</sup> through R<sup>7</sup> are defined in relevant part<sup>4</sup> as:  
R<sup>1</sup> represents \* \* \* a C<sub>7</sub>-C<sub>40</sub>-alkylaryl group \* \* \*  
R<sup>2</sup> to R<sup>5</sup> are the same or different and stand for hydrogen,  
\* \* \* a C<sub>1</sub>-C<sub>20</sub>-alkyl group, \* \* \*.
16. According to Becke, the catalysts are "preferably suitable for the preparation of rubbers based on copolymers of ethylene with one or more of the  $\alpha$ -olefins and dienes mentioned." (Becke at 8:4–7.)
17. Becke provides several examples of polymerizations using the catalysts that lead to rubbers, e.g., Examples 2, 3, 8, and 9.
18. None of Becke's examples use a complex based on a monoazadiene within the scope of Oberthur's formula (I).

#### Examiner's rejection

19. The Examiner finds that "Becke teaches a method for admixing an anti-aging agent, monoazadiene, with at least one rubber monomer, particularly conjugated dienes, and a vulcanizing agent, Vulkanox BKF." (Answer at 3, citing Becke at 7:26 through 8:40, and 11:45.)
20. The Examiner maintains further that the preamble should not be given patentable weight "because properties with respect to aging characteristics are absent in the body of the claims." (Answer at 3.)

#### Oberthur's Argument

21. Oberthur argues claims 1, 2, and 4 as standing or falling together, and presents a nominally separate argument that claims 5 and 6 stand or fall together.

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<sup>4</sup> The complete definition is reproduced in Appendix II.

22. Regarding claim 1, Oberthur argues that Becke relates "to a catalyst system based on monoazadiene metal complexes," whereas Oberthur's invention "relates to anti-aging agents based on organic compounds containing conjugated azadiene groups, which are capable of providing rubber vulcanisates [sic: vulcanizates] with long-term protection." (Br. at 9; internal quotes omitted.)

23. Oberthur adds that its "formula (I) does not set forth a metal complex and is not of the general Becke formula  $A_mI_nM[\text{monoazadiene}]$ ." (Br. at 10.)

24. Oberthur admits that Becke indicates that rubbers can be prepared. (Br. at 10.)

25. Oberthur protests, however, that nowhere does Becke indicate or suggest anti-aging properties for the monoazadiene complexes. (Br. at 11.)

26. Oberthur concludes that not every limitation of the claims is taught, and that the rejection for anticipation should be reversed. (Br. at 11.)

27. With regard to claims 5 and 6, Oberthur essentially repeats his argument, concluding that the azadiene anti-aging element of the present claim "is simply not taught by Becke et al. and Becke fails to anticipate the present claimed embodiment of the invention." (Br. at 12.)

28. Oberthur does not challenge the Examiner's findings that Becke teaches the formation of a rubber in the presence of a vulcanizing agent.

### **C. Discussion**

A claim is anticipated if a prior art reference describes every limitation of a claim, either explicitly or implicitly. *E.g., In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). During

prosecution of an application for patent, “the PTO applies to the verbiage of the claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). It is well settled that “when the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). This is because the PTO does not have the resources or means to test the prior art or an applicant's invention. *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972) (“[a]s a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith.”).

Because Oberthur's arguments regarding the patentability of claim 5 are essentially identical to his arguments regarding the patentability of claim 1, we need not address them separately.

Claim 1 recites, in abbreviated form:

A method for reducing the aging characteristics of a rubber vulcanizate comprising admixing an anti-aging agent, based on organic compounds comprising azadiene groups of the general formula (I) \* \* \* with at least one rubber monomer and a vulcanizing agent.

Oberthur does not dispute the Examiner's findings that Becke teaches admixing at least one rubber monomer (butadiene), a vulcanizing agent, and a metal complex based on monoazadienes of Oberthur's formula (I). Instead, Oberthur argues that Becke does not teach anti-aging agents.

The difficulty with Oberthur's argument is that it neglects the plain language of the claims on appeal, namely, that the anti-aging agent is "based on organic compounds comprising azadiene groups of the general formula (I)" (Claim 1, line 2; claim 5, line 3; emphasis added.) The term "based on," in a chemical context, is broad, and includes chemical derivatives of the compounds shown. If Oberthur intended to restrict the scope of anti-aging agents to compounds of formula (I), he could have used such ordinary claim language as "anti-aging agents having general formula (I)," which would have excluded complexes with metals or other chemical entities. By choosing the broad (and not specifically defined) term "based on," Oberthur sought to obtain broader patent protection, at the peril, here realized, of being exposed to a broader range of prior art.

In the present case, the Examiner has shown that Becke describes processes that meet the sole recited step of admixing compounds that Oberthur does not dispute meet the recited compositional limitations of the appealed claims. Under these circumstances, it is not enough merely to assert that the metal complexes Becke describes are not "anti-aging agents." A suitable proof might comprise a two-part showing. The first part comprises a credible showing of what the art understands "anti-aging



agents" to be<sup>5</sup>, i.e., what aging processes are counteracted, and, to the extent understood, why. The second part comprises a credible showing that the Becke metal complexes do not have those properties. (In the alternative, the second part might be a credible explanation of why the Becke metal complexes could not reasonably be expected to have those properties, although this might be more difficult in light of the silence of the specification as to what those properties are.)

The first showing, i.e., that "anti-aging agent" is a term of art having a reasonably well defined meaning to those skilled in the relevant arts, might also function as an effective rebuttal to the Examiner's position that the recitation of the anti-aging property is not entitled to any patentable weight. In the absence of such a showing, however, the Examiner has not been shown to have erred reversibly.

In a peripheral claiming system, the burden of distinguishing compositions that meet all the express structural limitations recited in a claim properly falls on the applicant. This is because the applicant is charged with the responsibility of defining the subject matter it wishes to claim. *See, e.g., Morris*, 127 F.3d at 1056, 44 USPQ2d at 1029 ("We decline to attempt to harmonize the applicants' interpretation with the application and prior art. Such an approach puts the burden in the wrong place. It is the applicants' burden to precisely define the invention, not the PTO's. *See* 35 U.S.C. § 112 ¶ 2 ("The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject

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<sup>5</sup> The silence of the specification as to the functions and properties of "anti-aging agents" raises the bar somewhat, as the appearance of a *post-hoc* rationalization must be avoided.

matter which the applicant regards as his invention.")). Moreover, the applicant is in the best position to distinguish its claimed subject matter from the prior art.. "As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." *See Brown*, 459 F.2d at 535, 173 USPQ at 688. Here, Oberthur has not introduced any credible evidence or explanation showing that Becke's complexes do not have anti-aging effects on vulcanized rubber compositions.

Accordingly, we AFFIRM the Examiner's rejection.

**D. Order**

In view of the foregoing considerations, it is

ORDERED that the Examiner's rejection of claims 1, 2, 4, 5, and 6 under 35 U.S.C. § 102(b) over Becke is AFFIRMED.

FURTHER ORDERED that the time for taking further action is not extendable under the provisions of 37 C.F.R. § 1.136(a)(2006).

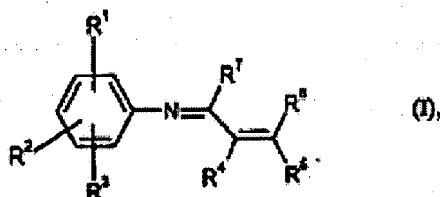
**AFFIRMED**

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## APPENDIX I

### Oberthur Claim 1:

1. (Previously Presented) A method for reducing the aging characteristics of a rubber vulcanizate comprising admixing an anti-aging agent, based on organic compounds comprising azadiene groups of the general formula (I)



wherein

$R^1$  represents hydrogen, straight-chain or branched  $C_1$ - $C_{12}$ -alkyl,  $C_1$ - $C_{12}$ -alkoxy-,  $C_1$ - $C_{12}$ -alkylthio-,  $C_1$ - $C_{12}$ -alkylamino-, di- $(C_1$ - $C_{12}$ -alkyl)-amino-,  $C_6$ - $C_{14}$ -aryl-,  $C_6$ - $C_{14}$ -aryloxy-,  $C_6$ - $C_{14}$ -arylthio-,  $C_6$ - $C_{14}$ -arylamino-,  $C_2$ - $C_{12}$ -heteroaryl-,  $C_2$ - $C_{12}$ -heteroaryloxy-,  $C_2$ - $C_{12}$ -heteroarylthio-,  $C_2$ - $C_{12}$ -heteroarylamino-,

$R^2$  and  $R^3$  are the same or different and represent straight-chain or branched  $C_1$ - $C_{12}$ -alkyl,  $C_1$ - $C_{12}$ -alkoxy-,  $C_1$ - $C_{12}$ -alkylthio-,  $C_1$ - $C_{12}$ -alkyl-amino-, di- $(C_1$ - $C_{12}$ -alkyl)-amino-, benzyl-, 1,1-dimethylbenzyl- or phenyl-,

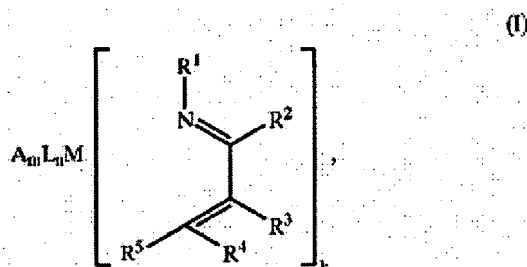
or together form a 5-10-link aliphatic or aromatic, mono- or polynuclear ring system, which may optionally be interrupted once or more than once by heteroatoms selected from the group consisting of N, O and S,

$R^4$  to  $R^6$  are the same or different and represent hydrogen, straight-chain or branched  $C_1$ - $C_{12}$ -alkyl-,  $C_5$ - $C_{12}$ -cycloalkyl- or  $C_6$ - $C_{14}$ -aryl-, mono- or polyunsaturated, olefinic or acetylenic, straight-chain or branched  $C_2$ - $C_{12}$ -alkenyl-,  $C_2$ - $C_{12}$ -alkinyl- or  $C_5$ - $C_8$ -cycloalkenyl, or together form a 5-8-link, aliphatic ring system, which may optionally be interrupted once or more than once by heteroatoms selected from the group consisting of N, O and S, with at least one rubber monomer and a vulcanizing agent.

## APPENDIX II

### Becke Complex:

a) a monoazadiene metal complex of the formula



wherein

M is a metal from Group IIIb, IVb, Vb, VIb or the lanthanides or actinides of the periodic table [N. N. Greenwood, A. Earnshaw, *Chemie der Elemente*, VCH 1990].

A signifies an optionally monobridged or polybridged anionic ligand,

$R^1, R^2, R^3, R^4, R^5$  are the same or different and stand for hydrogen, halogen, a cyano group, a  $C_1$  to  $C_{20}$  alkyl group, a  $C_1$  to  $C_{10}$  fluoroalkyl group, a  $C_6$  to  $C_{10}$  fluoroaryl group, a  $C_1$  to  $C_{10}$  alkoxy group, a  $C_6$  to  $C_{20}$  aryl group, a  $C_6$  to  $C_{10}$  aryloxy group, a  $C_2$  to  $C_{10}$  alkenyl group, a  $C_7$  to  $C_{40}$  arylalkyl group, a  $C_7$  to  $C_{40}$  alkylaryl group, a  $C_8$  to  $C_{40}$  arylalkenyl group, a  $C_2$  to  $C_{10}$  alkynyl group, a silyl group optionally substituted by  $C_1$ - $C_{10}$  hydrocarbon radicals

or

$R^1, R^2, R^3, R^4, R^5$  form, together with the atoms linking them in each case, one or more aliphatic or aromatic ring systems, which may contain one or more heteroatoms (O, N, S) and have 5 to 10 carbon atoms,

L signifies a neutral ligand,

n is a number from 0 to 10,

m signifies 0, 1, 2, 3 or 4 and

k is 1, 2 or 3 and the sum of  $m+k$  is 1 to 5, as a function of the oxidation number of M

and

b) a co-catalyst suitable for activating the metal complex a), the molar ratio of component a) to component b) lying in the range of 1:0.1 to 1:10000, preferably 1:1 to 1:1000.

(Becke at 2:1-43.)